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INTERFACE CONTROL DOCUMENT

FOR THE

COMMUNICATIONS SUPPORT PROCESSOR

Version 5.8

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SECTION 1. SCOPE

1.1 Interface Identification. This Interface Control Document (ICD) for the Common User Baseline for the Intelligence Community (CUBIC) Communications Support Processor (CSP) identifies the system/segment interfaces for all fielded versions of the CSP V5.8 system operating on the following platforms: Sun-based, DEC AXP 3000-based, DEC AlphaServer 4000-based, and DEC AlphaServer 800-based. The ICD describes the interface functions and requirements for interfacing Configuration Items (CIs) in sufficient detail to present a clear and unambiguous understanding of what constitutes the interface boundary and what is to be accomplished in effecting the intersystem/intersegment interface.

1.2 Document Organization. The document organization for this ICD is as follows:

a. Section 1 provides the identification, organization, and definitions of terms and abbreviations along with limitations and restrictions associated with this ICD.

b. Section 2 provides a list of applicable reference documents that provide requirements and design details not contained in this ICD.

c. Section 3 provides a matrix of interfacing systems.

d. Section 4 provides the interface specifications for the Sun-based, DEC AXP 3000-based, DEC AlphaServer 4000-based, and DEC AlphaServer 800-based CSP systems.

e. Section 5 provides any relevant notes not provided by other sections of this ICD.

f. Appendix A provides a listing of the supported hardware for all four CSP platforms.

1.3 Definitions. The following is a list of terms, abbreviations, and acronyms that appear in this document.

ACK	Acknowledgement
ACP	Allied Communications Publication
ASAS	All Source Analysis System
ASCII	American Standard Code for Information Interchange
AUTODIN	Automatic Digital Network
CI	Configuration Item
CIC	Content Indicator Code
CRC	Cyclic Redundancy Check
CRITIC	Critical Intelligence
CSP	Communications Support Processor

CUBIC	Common User Baseline for the Intelligence Community
DDCMP	Digital Data Communications Message Protocol
DDI	Delivery Distribution Indicator
DEC	Digital Equipment Corporation (now Compaq)
DOI	DSSCS Operating Instructions
DTE	Data Terminal Equipment
DTG	Date-Time Group
EOM	End-of-Message
FDMP	Full Duplex Message Protocol
GENSER	General Service
ICD	Interface Control Document
JANAP	Joint Army Navy Air Force Publication
JPL	Jet Propulsion Laboratory
LMF	Language Media Format
OPS	Operating Signal
PLA	Plain Language Address
RI	Routing Indicator
RLSD	Receive Line Signal Detector
TCP/IP	Transmission Control Protocol/Internet Protocol
WBT	Wait Before Transmitting

1.4 Limitation and Restrictions. There are no limitations or restrictions related to the CSP system/segment interfaces addressed in this ICD.

SECTION 2. APPLICABLE DOCUMENTS

The following referenced documents were used in the development of this document and can be used as a source of additional information.

2.1 DoD Documents.

None

2.2 Miscellaneous Documents.

Digital Equipment Corporation (DEC), Digital Data Communication Message Protocol (DDCMP) Specification, Version 4.0

DEC, Guide to Writing a Device Driver for VAX/VMS

DEC, VMS I/O User's Reference Manual Part I

DEC, VMS I/O User's Reference Manual Part II

2.3 CSP Documents. The following subparagraphs provide a list of the CSP documents referenced in the ICD. The month, year, and revision number for each CSP document listed below can be found in the Software Version Description.

10-5.6-SRS1, Software Requirements Specification for the System Configuration and Control (CSCI 1) of the Communications Support Processor

10-5.7-SRS2, Software Requirements Specification for the Message Processing (CSCI 2) of the Communications Support Processor

10-5.6-SRS3, Software Requirements Specification for the Message Clerk Applications (CSCI 3) of the Communications Support Processor

10-5.7-SRS4, Software Requirements Specification for the Communications (CSCI 4) of the Communications Support Processor

10-5.7-SSS, System Specification for the Communications Support Processor

CSPM-5.8-VDD, Version Description Document for the Communications Support Processor

10-5.4-SDD1, Software Design Document Volume 1 for the Communications Support Processor Performance Upgrade Program (U), SECRET

10-5.4-SDD2, Software Design Document Volume 2 for the Communications Support Processor Performance Upgrade Program (U), SECRET

10-5.4-SDD3, Software Design Document Volume 3 for the Communications Support Processor Performance Upgrade Program (U), SECRET

10-5.4-SDD4, Software Design Document Volume 4 for the Communications Support Processor Performance Upgrade Program (U), SECRET

10-5.4-SDD5, Software Design Document Volume 5 for the Communications Support Processor Performance Upgrade Program (U), SECRET

10-5.4-SDD6, Software Design Document Volume 6 for the Communications Support Processor Performance Upgrade Program (U), SECRET

10-5.4-SDD7, Software Design Document Volume 7 for the Communications Support Processor Performance Upgrade Program (U), SECRET

10-5.4-SDD8, Software Design Document Volume 8 for the Communications Support Processor Performance Upgrade Program (U), SECRET

10-5.4-SDD, Software Design Document for the Communications Support Processor Attachment 1 (U), SECRET, May 13, 1997, L97-563

10-5.6-SDD, Software Design Document for the Communications Support Processor Attachment 2 (U), SECRET, May 28, 1999, L99-572

10-5.7-SDD, Software Design Document for the Communications Support Processor Attachment 3 (U), SECRET, May 4, 2001, B024

CSPM-5.8-SDD, Software Design Document for the Communications Support Processor Attachment 4 (U), SECRET, January 31, 2002, A014

SECTION 3. CSP INTERFACES

The CSP system interfaces to both CUBIC and non-CUBIC CIs. Tables 3-1 and 3-2 provide a matrix of the CI level interfaces that the CSP supports.

Table 3-1 CUBIC System Interfaces

INTERFACING SYSTEM	CSP SYSTEM	
	CSP 5.x	
	Backside	Front-end
AMHS	X	
IESS	X	
CSP	X	X
MAXI	X	
XIDB	X	
DAWS/DMFE	X	

Table 3-2 Non-CUBIC System Interfaces

INTERFACING SYSTEM	CSP SYSTEM	
	CSP 5.x	
	Backside	Front-end
AIRES	X	
AIU	X	
ASAS/ENSCE	X	
AUTODIN		X
BATTLE MANAGEMENT	X	
CBT	X	

Table 3-2 Non-CUBIC System Interfaces (Continued)

INTERFACING SYSTEM	CSP SYSTEM	
	CSP 5.x	
	Backside	Front-end
MDITDS	X	
EISS	X	
EPDS	X	
ETUT	X	
GESCAN	X	
I90	X	
LOCE(LIP)	X	
MAWS	X	
MAS	X	
MDT	X	
MIPS	X	
MPDT	X	
MSG	X	
MSS	X	
NEWS DEALER		X
NMIC SS	X	
NPES	X	
NSA		X
PDSC	X	
ROLM HAWK	X	
SOIS	X	
SMART	X	

Table 3-2 Non-CUBIC System Interfaces (Continued)

INTERFACING SYSTEM	CSP SYSTEM	
	CSP 5.x	
	Backside	Front-end
STREAMLINER	X	
TENCAP	X	
TFC IPS	X	
TMAP	X	
TREDS MCE	X	
TRIOP	X	
TRW SPOOLER	X	
TYC-39	X	X
XMP	X	

SECTION 4. CSP INTERFACE SPECIFICATION

4.1 CSP to Backside Full Duplex Message Protocol Interface.

4.1.1 Interface Identification. The Full Duplex Message Protocol (FDMP) is a specially designed network level communications protocol. This protocol is used to control the transmission and reception of message traffic between two computer systems that utilize a link level protocol, such as the Digital Data Communications Message Protocol (DDCMP). As FDMP utilizes a link level protocol to interface to the physical level, it also serves as the interface between the application level responsible for message accountability, storage, and acceptance. The major advantage of the FDMP is that it provides greater message level accountability and control above and beyond link level protocol requirements. Figure 4.1.1-1 depicts the software levels in relation to the FDMP.

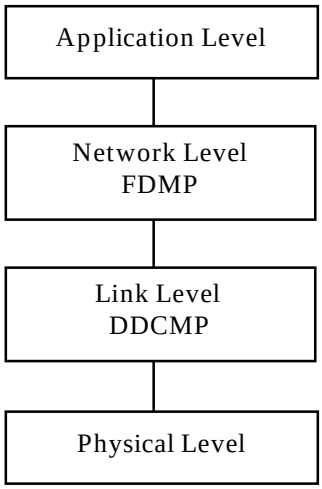


Figure 4.1.1-1 Software Levels

The FDMP supports transmission and reception of communications line control information that includes handling line status changes, line initialization, line shutdown, and link level communication events. Also supported are transmission and reception of message text and optionally the transmission and reception of supplemental data that provides additional information related to a specific message.

4.1.2 Interface Description. There are three FDMP states of operation: Send Message, Receive Message, and Shut Down or Throttling. The FDMP state operations for both sending and receiving of messages are divided into four modes: Not-Ready, Start-up (becoming ready), Idle (ready but inactive), and Message Active (actively sending or receiving message traffic). Operations involving sending a message and receiving a message have no affect on each other.

The following paragraphs describe the Send Message, Receive Message, and Shut Down or Throttling FDMP state operations. Flow diagrams depicting FDMP frames exchanged during each state and their proper responses are included within each paragraph where appropriate for clarification. The description of the FDMP control frames discussed in each state may be further clarified by referring to the functional description section for this interface.

4.1.2.1 Send Message State. In this state, the application level has determined that the CSP system is ready to transmit message traffic. Each of the four modes of operation listed in the succeeding paragraphs describes events that occur and the subsequent action that must be taken for the particular mode.

Not-Ready Mode

The Not-Ready mode is entered if the application level software is suppressing message transmission. In this mode the FDMP sends nothing and ignores the control frames Ready-to-Receive (READY), Wait Before Transmitting (WBT), Message Acknowledgement (ACK), and Message Reject (REJECT). The status remains not-okay-to-send.

Start-Up Mode

The Start-Up mode is entered on initial start up, after a link error is detected, or after a WBT control frame is received. The status is not-okay-to-send until the status of the interfacing system can be determined. To determine the status of the interfacing system, send the Request-Status (REQSTS) control frame and set a wait-for-reply timer (usually 15 seconds). After the control frame is transmitted, one of the following must occur:

A READY control frame is received. Change the status to okay-to-send. If messages are waiting, enter Message Active mode and transmit messages. After message transmission is complete, or if there are no messages to send, enter Idle mode. Figure 4.1.2.1-1 illustrates this FDMP exchange.

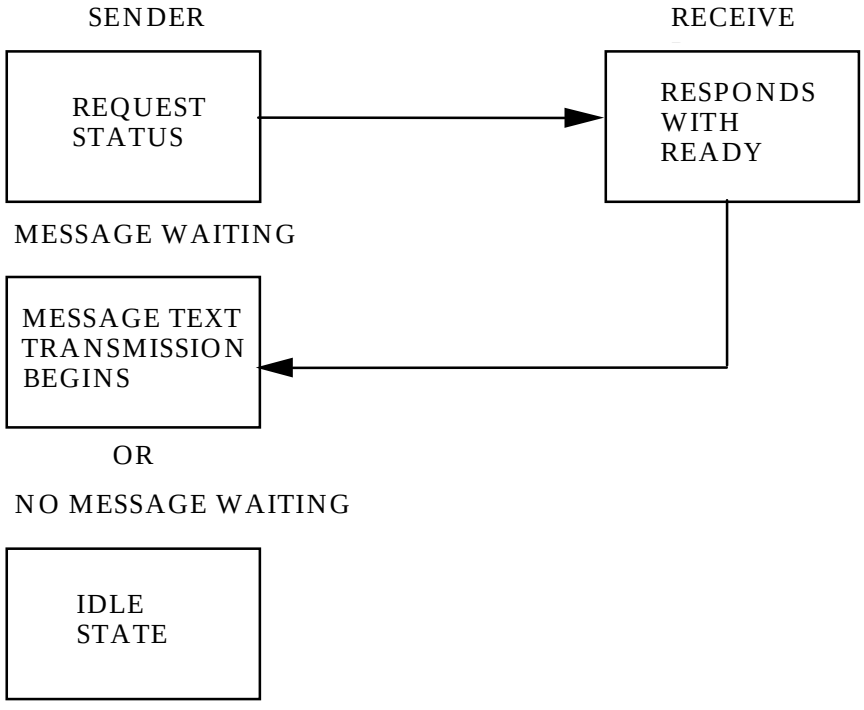


Figure 4.1.2.1-1 FDMP Start Up - Receiver Ready

A WBT control frame is received. Status remains not-okay-to-send. Wait for a specified time period and send a REQSTS control frame. The specified time period may be user selectable at configuration time or defined in the software and is implementation dependent. The recommended time period is between 10 and 30 seconds. Figure 4.1.2.1-2 illustrates this FDMP exchange.

The wait-for-reply timer expires. Retransmit the REQSTS control frame and restart the timer. The status remains not-okay-to-send. It is appropriate to enforce a threshold for the number of REQSTS control frame transmissions that do not elicit a response. If the threshold is reached, the communications line may be shutdown and operator notification provided. This is implementation dependent and not a requirement.

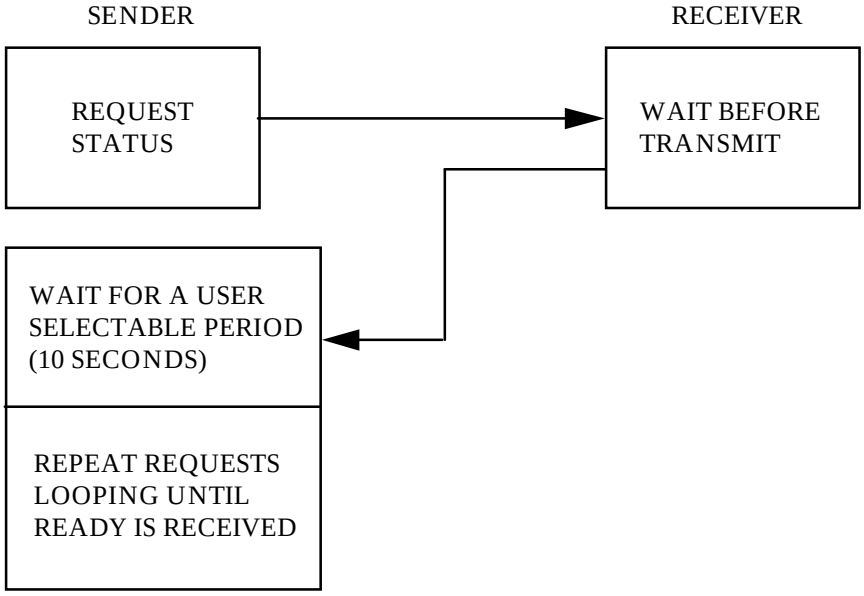


Figure 4.1.2.1-2 FDMP Start Up - Receiver Not Ready

An ACK or REJECT control frame is received. The status remains not-okay-to-send. At this point it is appropriate to consider the ACK and REJECT control frame as an error or threshold problem. If the threshold is reached, operator notification is recommended. This is implementation dependent and not a requirement.

A REQSTS control frame is received. This happens when both the sender and receiver enter the Start-Up mode concurrently. A READY control frame must be sent. The status remains not-okay-to-send until a READY control frame is received.

Idle Mode

The Idle mode is entered when the status is okay-to-send and no message is being transmitted. While in this mode one of the following events must occur:

A WBT control frame is received. Change the status to not-okay-to-send and enter the Start-Up mode.

A READY control frame is received. Ignore this frame. The status remains okay-to-send.

An ACK or REJECT control frame is received. At this point it is appropriate to consider the ACK and REJECT control frame as an error or threshold problem. If the threshold is reached, operator notification is recommended. This is implementation dependent and not a requirement.

Message Active Mode

In the Message Active mode there are two possible events. The first event entails sending all but the last frame of a message that consists of supplemental data, if selected, and message text. The second event is waiting for an acknowledgment after the last message text frame is sent.

In the first Message Active event, each message text frame is transmitted. One of the following must occur:

A REJECT control frame is received. The message sequence number in the control frame must be equal to the message sequence number of the message currently being transmitted. If the message sequence number is not equal, ignore the REJECT control frame. If the message sequence numbers are equal, notify the application level that the message was rejected and check any threshold values. If a threshold is reached, change the status to not-okay-to-send, notify the application level of the status change, and enter the Start-Up mode. The send message sequence number should remain the same and the message frame sequence number reset to one.

If the REJECT control frame contains a reject reason, the text must be forwarded to the application level for operator notification.

Figure 4.1.2.1-3 illustrates the FDMP REJECT exchange.

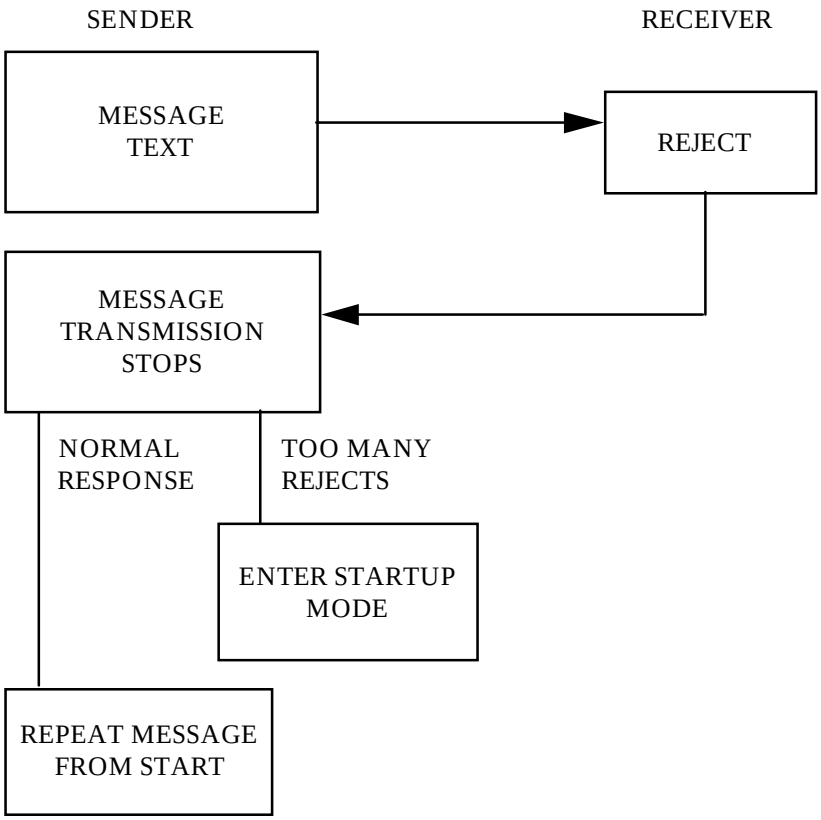


Figure 4.1.2.1-3 FDMP Message Active - Receiver Rejects Message

A WBT control frame is received. Further transmission of message frames is stopped. Notify the application level that the message was rejected and change the status to not-okay-to-send. Enter the Start-Up mode and reset the message frame sequence number to one. Figure 4.1.2.1-4 illustrates this FDMP exchange.

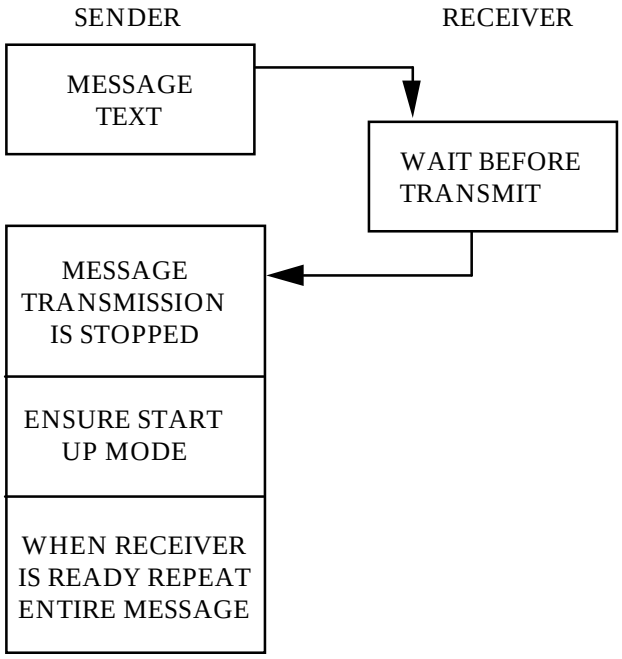


Figure 4.1.1.1-4 FDMP Message Active - Receiver Not Ready

An ACK or READY control frame is received. At this point it is appropriate to consider the ACK and READY control frame as an error or threshold problem. If the threshold is reached, operator notification is recommended. This is implementation dependent and not a requirement.

A link level error occurs. Attempt to transmit a cancel, CANCEL, control frame. Notify the application level that the message was canceled and change the status to not-okay-to-send. Enter the Start-Up mode and reset the message frame sequence number to one. Figure 4.1.2.1-5 illustrates this FDMP exchange.

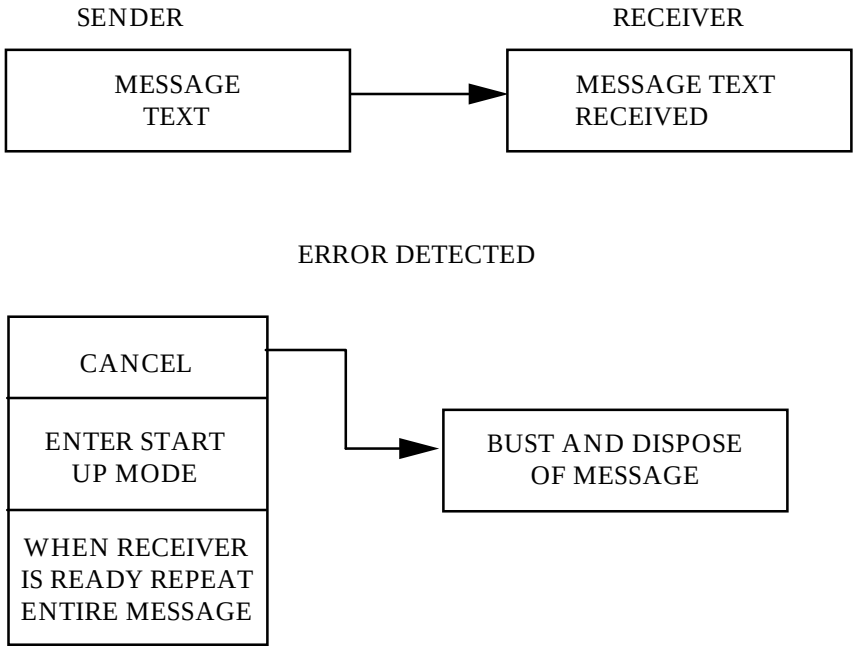


Figure 4.1.2.1-5 FDMP Message Active - Sender Cancels Message

The Message Sender (M/S) experiences a message processing error. Send a CANCEL control frame and reset the message frame sequence number to one. Enter the Idle mode and determine whether the message should be retransmitted.

In the second Message Active event, the last message text frame has been transmitted and a message reply timer has been set (usually 15 seconds). One of the following must occur:

An ACK control frame is received. Cancel the message reply timer. Verify that the message sequence number in the control frame is equal to the expected message sequence number of the message currently being transmitted. If the message sequence number is not equal, ignore the ACK. If the message sequence numbers are equal, increment the message sequence number, reset the message frame sequence number to one, notify the application level of the ACK, and send the next message or enter Idle mode. Figure 4.1.2.1-6 illustrates this FDMP exchange.

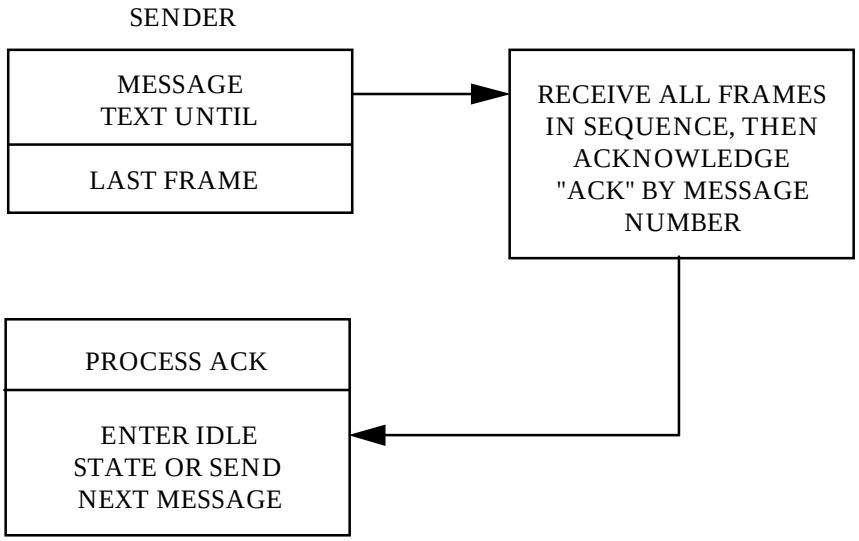


Figure 4.1.2.1-6 FDMP Message Active - Receiver Acknowledges Message

A REJECT or WBT control frame is received. Cancel the message reply timer and proceed as if received during message transmission.

The message reply timer expires. Send a CANCEL control frame. Requeue the message for later transmission and change the status to not-okay-to-send. Enter the Start-Up mode.

A READY control frame is received. Ignore this frame. The status remains okay-to-send.

4.1.2.2 Receive Message State. In this state, the application level has determined that the CSP system is ready to receive message traffic. Each of the four modes of operation listed in the succeeding paragraphs describes events that occur and the subsequent action that must be taken for the particular mode.

Not-Ready Mode

The Not-Ready mode is entered if the application level software is suppressing message reception. In this mode the FDMP sends a WBT control frame in response to supplemental data frames, message text frames, CANCEL or REQSTS control frames. All other messages are ignored. The status remains not-okay-to-receive.

Start-Up Mode

The Start-Up mode is entered on initial start up, after a link error is detected, or after a WBT control frame is received. The status is not-okay-to-receive. Once a REQSTS control frame is received and a READY control frame is sent in response, change the status to okay-to-receive, and enter the Idle mode.

Idle Mode

The Idle mode is entered when the status is okay-to-receive and no message traffic is being received. While in this mode one of the following events must occur:

A REQSTS control frame is received. Send a READY control frame and change the status to okay-to-receive.

A message text frame with a message frame sequence number of 001 is received. Enter the Message Active mode, start a message receive timer (usually 15 seconds), and save the message sequence number as the current receive message sequence number.

A message text frame with a message frame sequence number not equal to 001 is received. Send a REJECT control frame using the received message sequence number as the message sequence number in the control frame and bust the message. It is appropriate to consider this transaction as an error and increment a reject-sent threshold counter. If the threshold exceeds the predetermined allowable threshold, notify the application level for possible communications line shutdown processing. This is implementation dependent and not a requirement.

A CANCEL control frame is received. It is appropriate to consider this transaction as an error and increment a reject-sent threshold counter. If the threshold exceeds the predetermined allowable threshold, notify the application level for possible communications line shutdown processing. This is implementation dependent and not a requirement.

Message Active Mode

In the Message Active mode a message receive timer is started and each message text frame is received. While in this mode one of the following events must occur:

A message text frame with a message sequence number equal to the next expected message sequence number and with a message frame sequence number equal to the next expected message frame sequence number is received. The first message frame sequence number received must be one. Increment the count of good frames and the next expected message frame sequence number and reset the message receive timer.

A message text frame with a message sequence number not equal to the next expected message sequence number is received. Send a REJECT control frame using the received message sequence number as the message sequence number in the control frame and bust (stop reception) the message. It is appropriate to consider this transaction as an error and increment a reject-sent threshold counter. If the threshold exceeds the predetermined allowable threshold, notify the application level for possible communications line shutdown processing.

An alternative to sending a REJECT control frame is to notify the application level that an out of sequence message sequence number was received. Then, accept the new message sequence number resetting the expected sequence number to the actual message sequence number and continue with receiving the message.

The last message text frame is received. Cancel the receive timer and enter the Idle mode. Send a message level ACK after the message is safestored.

A CANCEL control frame is received. The message sequence number must equal the current receive message sequence number. If the message sequence numbers are equal, cancel the message receive timer and bust the message. If the message sequence numbers are not equal, increment a cancel error counter. If the counter exceeds a predetermined threshold, change the status to not-okay-to-receive, enter the Start-Up mode, send a WBT control frame, and notify the application level.

Message receive timer expires. If the good frame count is zero, restart the message receive timer. If it is nonzero, bust the message, send a REJECT control frame, and enter the Idle mode.

The Message Receiver (M/R) encounters a handling or message processing error such as a disk write error. Send a REJECT or WBT control frame and enter the Idle mode. The status remains okay-to-receive.

4.1.2.3 Shut Down or Throttling State. In this state, the application level has determined that the communications line should be shutdown or throttled. If a message was being received, it must be busted by transmitting a WBT control frame. If a message was being transmitted, send a CANCEL control frame. At this time, the Start-Up mode can be entered or the communications line shut down. Figure 4.1.2.3-1 illustrates this FDMP exchange.

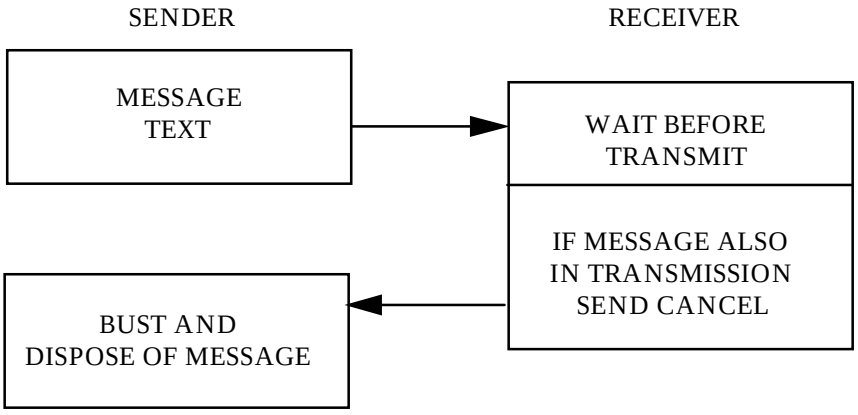


Figure 4.1.2.3-1 FDMP Shutdown or Throttling

4.1.3 Functional Interface Specification. The functional interface specification for the FDMP can best be presented by detailing the three types of frames comprising the FDMP. Each frame type must adhere to a specific format related to only that frame type. The three frame types are control, message text, and supplemental data. The following paragraphs provide a description of each frame type.

4.1.3.1 Control Frames. Control frames are used to communicate line status and control the flow of messages above the link level protocol requirements. The format of a control frame is as follows:

C	msg #	subtype	{cd}	{data}

Where:

C - 1 byte, ASCII C (103 octal) - type identifier for a control frame.

msg # - 4 bytes, ASCII numeric - number of the message to which the control frame applies. This number ranges from 0001 to 9999.

subtype - 6 bytes, ASCII alphabetic - control subtype, left justified and blank filled. Valid subtypes are:

REQSTS - request-status. Sent by the M/S at start up and after any error indicating loss of communications. This control frame is used to re-establish the communications link and does not precede every transmission. The sender's status is not-okay-to-send.

READY - ready-to-receive messages. Sent by the M/R in response to a REQSTS control frame. The sender's status is okay-to-receive. The receiver's status becomes okay-to-send.

WBT - wait before transmitting. Sent by the M/R in response to a REQSTS control frame or to indicate change in status. Sender's status is not-okay-to-receive. Receiver's status becomes not-okay-to-send. When sent while receiving a message, it indicates that the M/R cannot accept the complete message. The M/R should bust the message. The status of both side’s changes, as previously described.

REJECT - message reject. Sent by the M/R to indicate a sequence or format error. The M/R should bust the message. The M/S then should retransmit the message from the beginning. As an option, the M/R may send text in the reject reason field of the control frame identifying a reason for the reject.

ACK - message acknowledgement. Sent at the end of a message by the M/R to indicate successful recording of the entire message. The message sequence number must equal the current message sequence number being sent.

CANCEL - cancel message. Sent by the M/S to specify that the message currently being received by the M/R will not be completed. The M/R should bust the message. The message sequence number must equal the current receive message sequence number.

{cd} - 3 bytes, ASCII alphabetic - optional for HDLC and DDCMP, required for TCP/IP. A channel designator used to corroborate that communications circuits are correctly patched together. For lines configured to use channel designators, this field must appear in all control frames. When this field is not used, then the data field will immediately follow the subtype field.

{data} - variable length printable ASCII - contents are based on the control frame subtype. The kinds of data and the kinds of frames on which they can occur are:

reject reason - optional on REJECT frames - variable length up to 69 characters containing a message level reject reason.

key exchange data - optional on REQSTS, READY, and WBT frames - contains 128 characters. This field appears on all REQSTS, READY and WBT frames for TCP/IP lines that support Triple DES Encryption.

4.1.3.2 <u>Message Text Frames.</u> Message text frames are used for the transmission of messages. The format of a message text frame is as follows:

T	msg #	seq #	flg	fill	message text

Where:

T - 1 byte, ASCII T (124 octal) - type identifier for message text frames.

msg # - 4 bytes, ASCII numeric - number of the message being transmitted or received. This number ranges from 0001 to 9999.

seq # - 3 bytes, ASCII numeric - message text frame sequence number. This number ranges from 001 to 999. The sequence number will be 001 if there is no supplemental data sent with the message. If there is supplemental data, the seq # for the first text frame must be one greater than the seq # of the last frame of the supplemental data.

flg - 1 byte, ASCII L (114 octal) - flag indicating the last message text frame or an ACSII C indicating message continuation if the seq # has wrapped past 999 to 001. Otherwise the field contains an ASCII space (40 octal).

fill - 0 to 6 bytes, ASCII X (130 octal) - the number of fill bytes is dependent upon the FDMP header length definition. This is an optional field with a default of zero bytes.

message text - variable length ASCII alphanumeric. Binary data may be used in this field if the link level protocol supports binary data transfer.

The content of message text is transparent to FDMP. However, it should not contain binary data nor communications control characters, unless a protocol at the device level is used that supports binary data such as DDCMP.

4.1.3.3 Supplemental Data Frames. Supplemental data is optional information related to a message that precedes the message on transmission such as: message precedence, message format and so on. This information is referenced as keywords and is typically used by the receiver for message processing and data collection.

The supplemental data are generally user selectable and provided to the FDMP level by the application level. Once received by the application level, the FDMP will process and format the information and request the link level to add the appropriate protocol framing characters and transmit the frame.

Detailed in this section is a general description of the types of supplemental data frames and valid keywords.

4.1.3.3.1 Frame Composition. The format of a supplemental data frame is as follows:

S	msg #	seq #	flg	fill	supplemental data

Where:

S - 1 byte, ASCII S (123 octal) - type identifier for supplemental data frames.

msg # - 4 bytes, ASCII numeric - number of the message being transmitted or received. This number ranges from 0001 to 9999.

seq # - 3 bytes, ASCII numeric - message text frame sequence number. This number ranges from 001 to 999.

flg - 1 byte, ASCII L (114 octal) - flag indicating the last supplemental data frame. Otherwise the field contains an ASCII space (40 octal).

fill - 0 to 6 bytes, ASCII X (130 octal) - the number of fill bytes is dependent upon the FDMP header length definition. This is an optional field with a default of zero bytes.

supplemental data - variable length, format, and content. The supplemental data field will normally begin with a length, followed by an identifying keyword, followed by associated data. For purposes of this ICD the supplemental data field is referred to as an "item". The format is as follows:

length	keyword	data

Where:

length - 3 bytes, ASCII numeric field specifying the length of the keyword and data fields.

keyword - variable length, ASCII text identifying the type of data being transmitted. Refer to the keyword list at the end of this section.

data - variable length, ASCII text pertaining to the message being transmitted.

To optimize link utilization, the supplemental data field may be formatted in one of four ways:

Form 1 - This form is used when one or more specific items fit completely into a supplemental data frame. The format is as follows:

item 1	item 2	...item n

Where:

item 1 ... n has the format and content below and described above.

length	keyword	data

Form 2 - This form is used as a continuation frame when an item is too large to fit in the remaining frame space. The format is as follows:

000	keyword	data

Where:

000 - 3 bytes, ASCII zeros signifying that the remainder of the frame contains the beginning of the item.

keyword - variable length, ASCII text identifying the type of data being transmitted. Refer to the keyword list at the end of this section.

data - variable length, ASCII text pertaining to the message being transmitted.

Form 3 - This form is used for the continuation of an item that fills the entire frame. This occurs when the item was started in the previous frame in Form 2 (or continued in the previous frame in Form 3) and will be continued to the next frame in either Form 3 or Form 4. The format is as follows:

000	data

Where:

000 - 3 bytes, ASCII zeros signifying that the entire frame contains the continuation of the item.

data - variable length, ASCII text pertaining to the message being transmitted.

Form 4 - This form is used as a continuation frame for the last segment of an item that spans multiple frames. This occurs when the previous frame was in Form 2 or Form 3. The format is as follows:

length	data

Where:

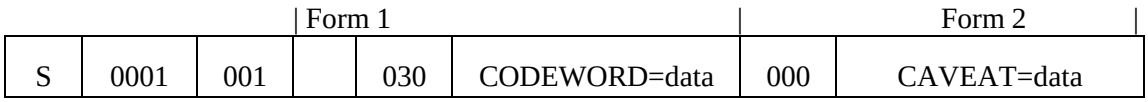
length - 3 bytes, ASCII numeric which specifies the length of the last segment of the item.

data - variable length, ASCII text pertaining to the message being transmitted.

The following two examples demonstrate the four forms of supplemental data items. In the following examples, the codewords, caveats, and compartments have been selected as the supplemental data items with a frame length 65 bytes (example 1) and 143 bytes (example 2) in size. The message being transmitted has 30 characters of codeword data, 80 characters of caveat data, and 15 characters of compartment data.

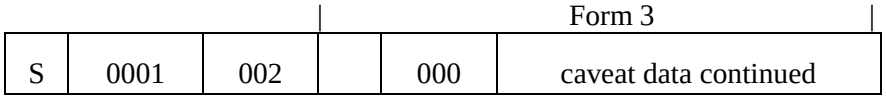
Example 1:

Frame 1 of transmission:



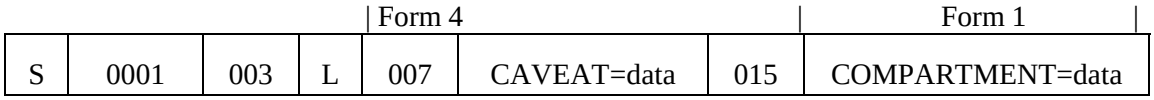
bytes	1	4	3	1	3	30	3	20	65

Frame 2 of transmission:



bytes	1	4	3	1	3	53	65

Frame 3 of transmission:



bytes	1	4	3	1	3	7	3	15	37

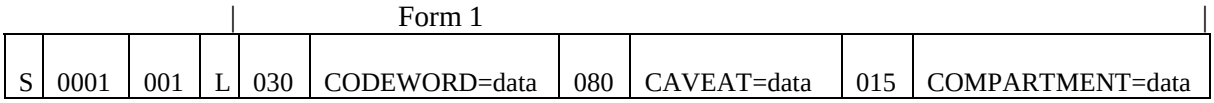
Each frame has an S for supplemental data and a message number of 0001. The frames have sequential frame numbers of 001 through 003.

The codeword data is included in the first frame in Form 1. The caveat data begins in the first frame in Form 2. The caveat data continues throughout all of the second frame in Form 3. Form 4 is used in the third frame for the last 7 characters of the caveat data. The compartment data is in the third frame in Form 1.

Note that the first two frames are 65 bytes in length, but the third frame is only 37 bytes. This example does not account for any device header and trailer information that may be needed for the link level protocol.

Example 2:

Frame 1 of transmission:



bytes	1	4	3	1	3	30	3	80	3	15	143

With the large frame size all the supplemental data items would use Form 1.

4.1.3.3.2 Keyword List. The supplemental data keywords are user selectable from the applications level and passed to the FDMP level for formatting and eventual transmission by the link level protocol. A list of the supported keywords and their definition and format are presented below.

CSP Fixed Length Data Items

Classification

Codewords

Caveats

Compartments

Handling Instructions

Action Addressees

Info Addressees

Message and Supplemental Data Cyclic Redundancy Check (CRC)-16 Values

Each supplemental data item begins with a keyword. The end of all supplemental data items are marked with a carriage return <cr> and a line feed <lf> except for CSP Fixed Length Data Items. A detailed description of each of the supplemental data item fields follows:

a. CSP Fixed Length Data Items

FIXED = CSP fixed length data items. These items consist of a variety of fixed length records that contain specific information about the message. The CSP Fixed Length Data Item descriptions are detailed in table 4.1.3.3.2-1.

b. Classification

CLASS = classification<cr><lf>

Where:

classification - is a valid security classification. A 23-character field, left justified blank filled to 23 characters. There is a space before and after the equal sign. The classification is ended with a <cr><lf>.

c. Codewords

CODEWORD(S) = codewords<cr><lf>

Where:

codewords - is a valid message codeword or codewords. This is a variable length field of ASCII text. There is a space before and after the equal sign.

The end of the codeword list is marked with a carriage return <cr> and a line feed <lf>. If there are no codewords, the keyword is followed by a space, an equal sign, a space, and <cr><lf>.

Codewords are separated by two spaces.

If the codeword list (including the keyword, spaces, <cr>, and <lf>) exceeds 80 characters, the list must be broken. A <cr><lf> is used to mark the end of each line. A single codeword itself may not be split across lines.

Table 4.1.3.3.2-1 CSP Fixed Length Data Items

ITEM	DESCRIPTION	SIZE	FORMAT
1	MESSAGE ID	12 BYTES	NUMERIC
2	SUSPECTED DUPLICATE FLAG	1 BYTE	ALPHANUMERIC S - SUS DUP " " - NOT A SUS DUP
3	MESSAGE PRECEDENCE	1 BYTE	ALPHANUMERIC R - ROUTINE P - PRIORITY O - IMMEDIATE Z - FLASH Y - EMERGENCY W - CRITIC
4	TIME OF RECEIPT INTO CSP	12 BYTES	ALPHANUMERIC YYMMDDHHMMSS
5	INPUT LINE NAME	32 BYTES	ALPHANUMERIC, LEFT JUSTIFIED, BLANK FILLED
6	OFFSET TO FRMT LINE 5	4 BYTES	UNSIGNED INTEGER
7	OFFSET TO FRMT LINE 6	4 BYTES	UNSIGNED INTEGER

Table 4.1.3.3.2-1 CSP Fixed Length Data Items (Continued)

ITEM	DESCRIPTION	SIZE	FORMAT
8	OFFSET TO FRMT LINE 12	4 BYTES	UNSIGNED INTEGER
9	OFFSET TO FRMT LINE 15A	4 BYTES	UNSIGNED INTEGER
10	MESSAGE FORMAT	8 BYTES	ALPHANUMERIC, LEFT JUSTIFIED, BLANK FILLED DOI103 DOI103M JANAP128 ACP127
11	ORIGINATING STATION	8 BYTES	ALPHANUMERIC, ROUTING INDICATOR (OSRI), LEFT JUSTIFIED, BLANK FILLED
12	DATE-TIME GROUP (DTG)	12 BYTES	ALPHANUMERIC DDHHMMZMMMYY
13	CLASSIFICATION CHARACTER	1 BYTE	ALPHANUMERIC U - UNCLASSIFIED E - UNCLAS EFTO R - NATO RESTRICTED C - CONFIDENTIAL S - SECRET T - TOP SECRET

Total length is 103 bytes.

Examples:

CODEWORD(S)<b>=<b><cr><lf>

CODEWORD(S)<b>=<b>codeword1<cr><lf>

CODEWORD(S)<b>=<b>codeword1<b><b>codeword2<cr><lf>

CODEWORD(S)<b>=<b>codeword1<b><b>codeword2<b><b>codeword3<cr><lf>
codeword4<b><b>codeword5<cr><lf>

Where:

<b> represents a space.

d. Caveats

CAVEAT(S) = caveats<cr><lf>

Where:

caveats - is the same format as the codewords above.

e. Compartments

COMP = compartments<cr><lf>

Where:

compartments - is the same format as the codewords and caveats with one exception. The first group of the compartments is limited to 40 characters including the keyword and ending <cr><lf>. Other following groups may not exceed 80 characters.

f. Handling Instructions

HANDLE VIA handling instructions<cr><lf>

Where:

handling instructions - is the message handling instructions. This is a variable length field of ASCII text up to 80 characters. No handling instructions will be included if a message has no compartment. The identifying phrase "HANDLE VIA <cr><lf>" will always be sent, however.

g. Action Addressees - is a variable length field that identifies the local distribution of Action Addressees as determined by the automatic message dissemination process or the Message Distribution Clerk.

ACTION = [ORGANIZATION]OFFICE1(1),,,n(1)<cr><lf>

Where:

ORGANIZATION - is a variable length organization identifier with a maximum length or 16 characters.

OFFICE1(1),,,n(1) - are office symbols 1 through n which are variable length with a maximum length of 16 characters each. The number in parenthesis is the copy count (this number is replaced by a dash if the office symbol is not associated with a line printer).

Examples:

ACTION = [HQ-USAF]CC(2),INS(-),INT(-)<cr><lf>
ACTION = [HQ-USAF]CC(2),INS(-),INT(-)<cr><lf>
[93BMW]DO(-),LG(1),IN(-)<cr><lf>
[1100-ABG]CCE(1)<cr><lf>

h. Info Addressees - same format as Action Addressees (see above).

INFO = [ORGANIZATION]OFFICE1(1),OFFICE2(-)<cr><lf>

i. Message and Supplemental Data CRC-16 Values - are hexadecimal representations of the CRC calculated on the message text and supplemental data (excluding individual field length specifications), in ASCII, followed by a <cr><lf>.

CRC = mmmm<cr><lf>
ssss<cr><lf>

Where:

mmmm - is the hexadecimal representation of the CRC of the message text in ASCII

ssss - is a hexadecimal representation of the computed CRC for all supplemental data in ASCII. The CRC value excludes the value of the field lengths. Refer to the section on Supplemental Data Frame Composition for more details on the length field.

NOTE: The CRC-16 value for Supplemental Data includes the calculated message text CRC value (including the <cr><lf>).

4.1.4 Physical Interface Specification. The communication devices currently supported are the SIMPACT CNS 6200 or CNS 6300 Communications Network Server (with RS-232 or RS-530 interfaces).

Also note that the nomenclature for signal standards has changed since the CNS 6200 was designed. The old designations were EIA-nnn. They are now officially RS-nnn. CNS 6200 documentation refers to

EIA-232, EIA-449, and EIA-530. This manual will refer to these standards as RS-232, RS-449, and RS-530 except when referencing specific SIMPACT hardware parts.

RS-530 for the CNS 6200 and CNS 6300 uses the RS-422 balanced signal standard. RS-530 defines the specific pinouts for the balanced signals. Note that RS-449 also conforms to the RS-422 standard but uses completely different pinouts.

The control signal requirements for each device are detailed in the following paragraphs. It must be noted that the control signals are suggested but variations are possible depending on the final hardware configuration.

4.1.4.1 Hardware/Hardware Interfaces.

4.1.4.1.1 SIMPACT CNS 6200 Communications Network Server. CSP supports RS-232 and RS-530 interfaces. RS-232 is standard and a special line interface module must be ordered if RS-530 is required. On RS-232 interfaces, the CNS 6200 and the CSP patch panel pinouts are standard Data Terminal Equipment (DTE), as shown in figure 4.1.4.1.1-1. Note that pin 8, Carrier Detect (also called Receive Line Signal Detector, RLSD), is only needed for interfacing to STU III equipment.

Signal	Pin	Direction
Transmit Data	2	out
Receive Data	3	in
Request to Send	4	out
Clear to Send	5	in
Signal Common	7	N/A
Carrier Detect	8	in
Transmit Timing	15	in
Receive Timing	17	in
Terminal Ready	20	out
Timing Source	24	out

Figure 4.1.4.1.1-1 CNS 6200 RS-232 Patch Panel Pinouts

For RS-232, the signaling sense for data is as follows: pin 2 or 3 is negative with respect to ground (pin 7) for a binary 1 (MARK state) and is positive with respect to ground (pin 7) for a binary 0 (SPACE state).

On CNS 6200 with the EIA-449/530 Line Interface modules, the CNS complies with RS-422 Electrical Levels but uses a non-standard pinout. We correct for this with a special cable between the CNS 6200 and the patch panel so that the Patch Panel pinout is standard RS-530. The cable should be twisted pairs, with each “A” signal paired with the corresponding “B” signal. This is shown in figure 4.1.4.1.1-2.

Signal	Patch Pin	CNS Pin	Direction
Transmit Data (A)	2	14	out
Transmit Data (B)	14	1	out
Receive Data (A)	3	3	in
Receive Data (B)	16	15	in
Request To Send (A)	4	17	out
Request To Send (B)	19	4	out
Clear To Send (A)	5	18	in
Clear to Send (B)	13	5	in
DTE Ready (A)	20	23	out
DTE Ready (B)	23	10	out
Signal Ground	7	7	N/A
Transmit Timing (A)	15	20	in
Transmit Timing (B)	12	8	in
Receive Timing (A)	17	9	in
Receive Timing (B)	9	22	in
Timing Source (A)	24	21	out
Timing Source (B)	11	2	out

Figure 4.1.4.1.1-2 CNS 6200 RS-530 Patch Panel Pinouts

For RS-530, the signaling sense for data is as follows: the A pin is negative with respect to the B pin for a binary 1 (MARK state), the A pin is positive with respect to the B pin for a binary 0 (SPACE state).

CNS 6200 connectors are female DB25.

When CSP is ready to receive, it will raise the Terminal Ready signal. If flow control is implemented, then this is usually connected to the Backside's Clear to Send signal.

When CSP is ready to transmit, it raises the Request to Send signal, Clear to Send. When Clear to Send is true, CSP will transmit. If flow control is used, then the Backside's ready signal should be connected to the CSP Clear to Send signal. If flow control is not to be used, then CSP's Request to Send signal is usually connected to CSP's Clear to Send signal with a jumper.

4.1.4.1.2 SIMPACT CNS 6300 Communications Network Server. On the CNS 6300, the CSP supports RS-232 and RS-530 via software selection. On RS-232 interfaces, the CNS 6300 and the CSP patch panel pinouts are standard DTE, as shown in figure 4.1.4.1.2-1. Note that pin 8, Carrier Detect (also called RLSD), is only needed for interfacing to STU III equipment.

Signal	Pin	Direction
Transmit Data	2	out
Receive Data	3	in
Request to Send	4	out
Clear to Send	5	in
Signal Common	7	N/A
Carrier Detect	8	in
Transmit Timing	15	in
Receive Timing	17	in
Terminal Ready	20	out
Timing Source	24	out

Figure 4.1.4.1.2-1 CNS 6300 RS-232 Patch Panel Pinouts

For RS-232, the signaling sense for data is as follows: pin 2 or 3 is negative with respect to ground (pin 7) for a binary 1 (MARK state) and is positive with respect to ground (pin 7) for a binary 0 (SPACE state).

When RS-530 is selected, a “straight-through” cable connects the CNS 6300 and the patch panel. The cable should be twisted pairs, with each “A” signal paired with the corresponding “B” signal. This is shown in figure 4.1.4.1.2-2.

Signal	Pin	Direction
Transmit Data (A)	2	out
Transmit Data (B)	14	out
Receive Data (A)	3	in
Receive Data (B)	16	in
Request To Send (A)	4	out
Request To Send (B)	19	out
Clear To Send (A)	5	in
Clear to Send (B)	13	in
DTE Ready (A)	20	out
DTE Ready (B)	23	out
Signal Ground	7	N/A
Transmit Timing (A)	15	in
Transmit Timing (B)	12	in
Receive Timing (A)	17	in
Receive Timing (B)	9	in
Timing Source (A)	24	out
Timing Source (B)	11	out

Figure 4.1.4.1.2-2 CNS 6300 RS-530 Patch Panel Pinouts

For RS-530, the signaling sense for data is as follows: the A pin is negative with respect to the B pin for a binary 1 (MARK state), the A pin is positive with respect to the B pin for a binary 0 (SPACE state).

The CNS 6300 connectors are male DB25.

When CSP is ready to receive, it will raise the Terminal Ready signal. If flow control is implemented, then this is usually connected to the Backside's Clear to Send signal.

When CSP is ready to transmit, it raises the Request to Send signal, Clear to Send. When Clear to Send is true, CSP will transmit. If flow control is used, then the Backside's ready signal should be connected to the CSP Clear to Send signal. If flow control is not to be used, then CSP's Request to Send signal is usually connected to CSP's Clear to Send signal with a jumper.

4.1.4.2 Hardware/Software Interfaces. For VMS, this interface is detailed on the OpenVMS On-line Documentation CD-ROM. For Solaris, this interface is detailed on the SUN On-line Documentation CD-ROM.

4.1.4.3 Software/Software Interfaces. For VMS, this interface is detailed on the OpenVMS On-line Documentation CD-ROM. For Solaris, this interface is detailed on the SUN On-Line Documentation CD-ROM.

4.2 CSP to AUTODIN Mode I Protocol Interface. Synchronous transmission involves transmission of the eight-bit ASCII character in conjunction with a timing signal which is synchronized bit by bit with the data signal. Maintenance of synchronization during no-data intervals is assured by continuous transmission of ASCII SYN (IDLE LINE) characters.

4.3 CSP to Teletype Mode II Protocol Interface. Asynchronous transmission (whether eight-bit ASCII or five-bit ITA2) involves character framing and detection by the use of start and stop impulses. The start impulse is normally a 1-bit interval length space ahead of the character bits. The top impulse is normally a 2-bit interval return to a mark state following the character bits.

4.4 CSP Transmission Control Protocol/Internet Protocol Interface. Each FDMP frame is transmitted in its own Transmission Control Protocol/Internet Protocol (TCP/IP) packet. Preceding each FDMP frame packet is a separate TCP/IP packet containing a single 16-bit word, in network byte order. This word designates the length of the subsequent FDMP frame packet.

4.5 CSP Attachment Interface. With the release of CSP V5.7, the CSP is able to process messages containing binary attachments received from the CSP to DMS Addressing Component (CDAC) that meet certain specifications.

More specifically, the X.400 message may be as large as 4 MB in size, and the attachment will be uuencoded data that is nested in the text of the X.400 message. CSP will process the X.400 message with an attachment in much the same manner as other legacy messages; however, it will not section or page the message during processing. The backside terminal can identify messages with attachments by searching the body text for the following format:

TEXT
----End of main body -----
----Start of enclosure ----
uuencoded data
----End of enclosure ----

It should be noted that the message may contain more than one attachment and will use the following reiterative format when more than one attachment is enclosed:

TEXT
----End of main body -----
----Start of enclosure ----
uuencoded data
----End of enclosure ----
----Start of enclosure ----
uuencoded data
----End of enclosure ----
----Start of enclosure ----
uuencoded data
----End of enclosure ----

SECTION 5. NOTES

5.1 Cyclic Redundancy Check.

5.1.1 Description.

The CSP CRC provides a means to ensure a very high level of data integrity into, within, and out of the CSP. The CRC validation is performed on all message formats accepted by the CSP. These message formats are:

Joint Army Navy Air Force Publication (JANAP) 128 narrative

JANAP 128 data pattern (card)

JANAP 128 single card

DSSCS Operating Instructions (DOI)-103 narrative

DOI-103 data pattern (card)

DOI-103M (modified)

Allied Communications Publication (ACP) 127

DD Form 173

Optionally, the CSP can process Format Line 15A, a 4-digit hexadecimal value representing a CRC value, on message input or output. The option may be specified for each communications line during CSP system configuration. This means that if an input line requires Format Line 15A, messages received over that line must have a Format Line 15A present. If an input line does not expect a Format Line 15A, but the message contains one, that Format Line 15A will be verified. On output, messages being transmitted by the CSP will have a Format Line 15A.

5.1.2 Calculation Algorithm. The CSP utilizes a standard CRC-16 algorithm. The following is pseudo code for the algorithm:

Note: The values for all integers in the algorithm are assumed to be decimal. The actual value of the CRC must be represented in an ASCII hexadecimal format before appending to the message.

```
procedure CRC Buffer (IN Buffer IN Length IN OUT CRC Accumulator) is
 begin
  Shift1, Shift2, Letter, Bit: integer;
  Poly: constant :=40961;
  for I :=1 to Length loop
    Letter :=Buffer(I);
    for Bit :=1 to 8 loop
       Shift1 :=Letter rem 2;
       Shift2 :=CRC_Accumulator rem 2;
       CRC_Accumulator :=CRC_Accumulator / 2;
```

```
        if Shift1 /=Shift2
          then
              CRC_Accumulator :=CRC_Accumulator XOR Poly;
          end if;
          Letter :=Letter / 2;
      end loop;
    end loop;
  end CRC Buffer;
```

5.1.3 Message Format Line Identification. The message CRC value is calculated using Format Lines 5 (precedence and Date-Time Group (DTG) line), 6 (FROM line), and 12 (A through I, classification and text lines). However, Format Line 12 is the only format line required on all of the message types for this calculation.

The DOI-103 narrative and data pattern, JANAP 128 narrative and data pattern, DOI-103M, ACP 127 State and ACP 127 messages are all similar in the following ways: Format Line 5 starts with a precedence and ends with a DTG, that may be followed by communications operating signals, Format Line 6 starts with "FM" or "FROM" and is followed by the originator's Plain Language Address (PLA), and Format Line 12, which starts with the classification line and ends following the last line of Format Line 12I (message text).

The following notes are some specifications on the calculation of message types relating to CRC calculations:

CRC calculation stops when Format Line 13 (BT) is reached for JANAP 128 narrative and ACP 127 narrative messages.

CRC calculation stops when Format Line 15 (#nnnn) is reached for DOI-103 narrative and DOI-103M narrative messages.

CRC calculation for all data pattern messages is performed from the end of the last card of Format Line 2 to the start of Format Line 16.

CRC calculation stops when the End-of-Message (EOM) (#0000 or NNNN) is reached on DD Form 173 messages.

CRC is not supported on JANAP 128 single card messages.

For DOI-103 narrative, JANAP 128 narrative, DOI-103M, ACP 126 narrative, ACP 127 State and ACP 127 messages, Format Line 15A can be found on the line directly after Format Line 15. Format Line 15A is then followed by two carriage returns, eight line feeds, and the EOM marker "NNNN", (figures 5.1.3-1, 5.1.3-3, 5.1.3-5, and 5.1.3-6).

For DOI-103C data pattern, JANAP 128C data pattern, and JANAP 128 variable length card (Language Media Format (LMF) of "DD") messages, Format Line 15A will be found in columns 73 through 76 of the trailer card (figures 5.1.3-2, 5.1.3-4, and 5.1.3-7).

For DD Form 173 messages, the DTG occupies columns 9 through 24 of the first line. A CRC value should be calculated on that field regardless of its content. Format Line 6, the third line of the message, is the start of the "FROM" PLA and may, though not required, begin with the "FM" or "FROM" prosign. Format Line 12 starts with the classification and ends with, but does not include, the EOM (#0000 or NNNN). If a Format Line 15A is present, both EOM markers are required with Format Line 15A placed in between them and terminated by two carriage returns and one line feed (figure 5.1.3-8).

CRC calculations are done on all characters with the exception of carriage returns, line feeds, and ASCII EM characters.

Figures 5.1.3-1 through 5.1.3-10 are examples of messages with Format Line 15A. Format lines used for CRC calculations are underlined and Format Line 15A is in bold type. The CRC value of FFFF is a placeholder for example purposes only. The actual CRC value may or may not be equal to FFFF.

For single card messages, before CRC is calculated, Format Line 15A in columns five through eight is replaced with the correct Content Indicator Code of ZYVW (figure 5.1.3-10).

RATMZYUW YUCSSVC0003 0011200-MNSH--YUCSMDC.
ZNY MMNSH
ZKZK RR SOA DE
R 230600Z APR 87
FM STERLING SOFTWARE
TO UNCLE SAM
ZEM
UNCLAS
QQQQ
THIS IS A DOI-103 TEST MESSAGE.
#0003
FFFF

NNNN

Figure 5.1.3-1 DOI-103 (Narrative)

PCCMZYUW YUCSSVC0004 0071234 0011-MNSH--YUCSMDC.
ZNY MMNSH
ZKZK PP SOA DE
P 230600Z APR 87
FM STERLING SOFTWARE
TO UNCLE SAM
ZEM
UNCLAS
QQQQ
THIS IS A DOI-103 CARD TEST MESSAGE.
PCCMZYUW YUCSSVC0004 0071234 0011-MNSH **FFFF**NNNN

NOTE: The last character on the last card is in column 80.

Figure 5.1.3-2 DOI-103C (Data Pattern)

ZATEZYUW RUCSSVC0002 0051300-EEEE--RUCSMDC.
ZNY EEEEE
RUABCDE T USS EISENHOWER
Z O 230600Z APR 87
FM STERLING SOFTWARE
TO RUABCDE/UNCLE SAM
INFO RUFGHI/UNCLE JOE
BT
UNCLAS E F T O
SUBJECT: JANAP 128
THIS IS A JANAP 128 TEST MESSAGE.
BT
#0002
FFFF

NNNN

Figure 5.1.3-3 JANAP 128 (Narrative)

PACEZYUW RUCSSVC0003 0081217 0010-EEEE--RUCSMDC.
ZNY EEEEE
P 230600Z APR 87
FM STERLING SOFTWARE
TO RUABCDE/UNCLE SAM
BT
UNCLAS E F T O
SUBJECT: JANAP 128 CARD
THIS IS A JANAP 128 CARD TEST MESSAGE.
PACEZYUW RUCSSVC0003 0081217 0010-EEEE **FFFF**NNNN

NOTE: The last character on the last card is in column 80.

Figure 5.1.3-4 JANAP 128C (Data Pattern)

RR YEOAHN
DE YESMOG #0006 1131200
ZNY MMQAD
ZKZK RR ZZZ DE
R 230600Z APR 87 ZYH
FM STERLING SOFTWARE
TO UNCLE SAM
ZEM
UNCLAS
QQQQ
THIS IS A DOI-103M TEST MESSAGE
#0006
FFFF

NNNN

Figure 5.1.3-5 DOI-103M

ZATEZYUW RUCSSVC0002 0051300-EEEE--RUCSMDC.
ZNY EEEEE
RUABCDE T USS EISENHOWER
Z O 230600Z APR 87
FM STERLING SOFTWARE
TO UNCLE SAM
INFO UNCLE JOE
BT
UNCLAS E F T O
SUBJECT: ACP 126 NARRATIVE
THIS IS AN ACP 126 NARRATIVE TEST MESSAGE.
BT
#0002
FFFF

NNNN

Figure 5.1.3-6 ACP 126 (Narrative)

OO RUCSOFA
DE RUCSSVC #0007 1141200
ZNR UUUUU
0 230600Z APR 87
FM STERLING SOFTWARE
TO UNCLE SAM
BT
UNCLAS
SUBJECT: ACP 127
THIS IS AN ACP 127 TEST MESSAGE.
BT
#0007
FFFF

NNNN

Figure 5.1.3-7 ACP 127

PDDEZYUW RUCSSVC0003 0081217 0009-EEEE--RUCSMDC.
ZNY EEEEE
P 230600Z APR 87
FM STERLING SOFTWARE
TO UNCLE SAM
BT
UNCLAS E F T O
SUBJECT: JANAP 128 CARD TEST MESSAGE
PDDEZYUW RUCSSVC0003 0081217 0009-EEEE **FFFF**NNNN

NOTE: The last character on the last card is in column 80.

Figure 5.1.3-8 JANAP 128 Variable Length Card

01 01 230600Z APR 87 PP RR UUUU AT ABCDPUPPY

STERLING SOFTWARE
UNCLE SAM
UNCLAS
QQQQ
THIS IS A DD FORM 173 TEST MESSAGE
#0000
FFFF
NNNN

Figure 5.1.3-9 DD Form 173

PSCU**FFFF** RUCSSVC0005 0312100--RUCSMDC. SINGLE CARD EXAMPLE N

NOTE: The last character on the last card is in column 80. Also, the Format Line 15A is replaced by the correct Content Indicator Code, ZYVW, when the CRC is calculated.

Figure 5.1.3-10 JANAP 128SC (Single Card Data Pattern)

5.2 DD173 Message Preparation. Use the terminal as a normal typewriter and enter the message exactly as it appears on the DD Form 173. The following provides additional information that will be useful when creating a DD Form 173 message.

If the DTG is not provided, the system date, time, month and year is used. The LMF will be used if specified. If blank, the system will use the default of "AT".

The Content Indicator Code (CIC) will be used if specified. If blank, the system will use the default of "ZYUW".

The second line (book-message handling instructions) will be left blank if no Delivery Distribution Indicator (DDI) or Operating Signal (OPS) is to be used. The default DDI of "SOA" will be used unless the compartment is flagged as requiring a specific default DDI. If DDIs and/or Operating Signals are to be used, then a comma must be used as a separator and one or more spaces used as a delimiter.

Example:

DDI:ABC,FGH OPS:ZFF-1,ZZS DDI or OPS may be first as the order is not important.

Special consideration has been given to statistical satellite and weather messages. These messages do not require "paging." To create a message of this type, the designator "NPR" (No Paging Required) is placed after the OPS field. This designator is only recognized if the message is GENSER.

The third line (FROM) may contain only the originator's PLA or may begin with "FROM" or "FM". A default OSRI for a Critical Intelligence (CRITIC) message may be used by using the PLA of "DEFAULT CRITIC OSRI." The DEFAULT CRITIC OSRI will be used by the system if an invalid originator's PLA is entered on this line for a CRITIC message.

The fourth line is the start of the addressee list. Action addressees are denoted by entering "TO" followed by the first PLA. Information addressees are denoted by entering "INFO" followed by the first PLA. All other PLA entries can begin from position 1 of the next line through the actual start of the first PLA.

Example:

```
FM TEST 1
TO TEST 2
TEST 3

  OR

FM TEST 1
TO TEST 2
    TEST 3
```

Continuation lines will be included on the converted message, but only the first line of the PLA will be validated.

Continuation lines must begin at least 5 columns in from the start of the first PLA.

Example:

```
FM TEST 100
TO TEST 200
    THIS IS ONLY A TEST
```

You may use either “TO” or “INFO” on line four, i.e., no action addressee is required. Functional Address Symbols may be continued on the next line. This line must start in position five or six and not start with a single slash.

Following the addressees, the complete classification line(s) must be typed including all codewords, compartments, caveats, et cetera, as they appear on the DD Form 173. This step is completed by placing the security delimiter after the end of classification strings. The delimiter “QQQQ” must be used if creating a DSSCS type message. The strings “MSGID” or “SUBJ” are valid if the message is a GENSER type.

The remainder of the message text must be typed. The text must end with the Station Serial Number (#0000). This terminates message input.

APPENDIX A

10. Currently Supported CSP Hardware List. The following tables list the hardware for each CSP platform. Not all of the hardware contained in the lists has been tested with the CSP system.

Table 10-1 SUN-Based CSP

Central Processing Units	Sparc 5 Series
	Sparc 10 Series
	Sparc 20 Series
	ULTRA Sparc II Series
	Enterprise-250
System Consoles	SUN 20 inch Color Console
	SUN 19 inch Color Console
	SUN 17 inch Color Console
	SUN 16 inch Color Console
	SUN 15 inch Color Console
User Terminals	NCD 19C X-Terminal
	NCD 17C X-Terminal
	NCD HMX X-Terminal
	NCD HMXpro X-Terminal
	NCD Explora 700 X-Terminal
	NCD HMXpro 24*
	Explora 500 X-Terminal*
	Explora 400 X-Terminal*
Communication Devices	SIMPACT CNS 6200
	SIMPACT CNS 6300
	SIMPACT CNS 6320
Tape Drives	HP88780B
	KENNEDY 9610
	KENNEDY 9612

Table 10-1 SUN-Based CSP (Continued)

Tape Drives (Continued)	DEC TLZ06-VA
	DEC TSZ-07
	DEC TLZ09-VA
	SUN 4MM DDS3 Internal X6282A #
Disk Drives	RZ-25(L)
	RZ-26
	RZ-26(L)
	RZ-28
	RZ1BB-VW #
	RZ-29B-VW #
	RZ1CB-VW #
	X5229
	X5237A
	X5229A
	X5232A
	X5242A
Optical Disk Drives	HP1716©
	HP1716(M)*
	HP1716(T)*
	Sony SMO F541
	Sony SMO F544
Printers	DEC LB-615*
	DEC LB1515*
	DEC LB1015*
	DEC LB-600*
	DEC LG-01*
	Data Products LB-615*

Table 10-1 SUN-Based CSP (Continued)

Printers (Continued)	Epson 870
	Epson 2550*
	Epson LQ570+
	Fujitsu 3041T
	Fujitsu 3042T
	Fujitsu 3043T
	HP-4100
	Tally-T2045
	Tally-T6082
	Tally-T609x Series
Print Server	MP-1

* Denotes that devices were installed but were never tested and approved.
# Denotes Ultra series processor ONLY.

Table 10-2 DEC AXP 3000-Based CSP

Central Processing Units	DEC AXP 3000
System Consoles	VT420
User Terminals	NCD 19C X-Terminal
	NCD 17C X-Terminal
	NCD HMX X-Terminal
	NCD HMXpro X-Terminal
	NCD Explora X-Terminal
Communication Devices	SIMPACT CNS 6200
	SIMPACT CNS 6300
	CIMPACT CNS 6320
Tape Drives	HP88780B
	KENNEDY 9610
	KENNEDY 9612

Table 10-2 DEC AXP 3000-Based CSP (Continued)

Tape Drives (Continued)	DEC TLZ06-VA
	DEC TSZ-07
Disk Drives	RZ-25(L)
	RZ-26
	RZ-26(L)
	RZ-28
Optical Disk Drives	HP1716(C)
	HP1716(M)*
	HP1716(T)*
Printers	DEC LB-615*
	DEC LB1515*
	DEC LB1015*
	DEC LB-600*
	DEC LG-01*
	Data Products LB-615*
	Epson 870
	Epson LQ570+
	Epson 2550*
	Fujitsu 3041T
	Fujitsu 3042T
	Fujitsu 3043T
	HP-4100
	Tally-T2045
	Tally-T6082
	Tally-T609x Series
Print Server	MP-1

* Denotes that devices were installed but were never tested and approved.

Table 10-3 DEC AlphaServer 4000-Based CSP

Central Processing Units	DEC AXP 4000
System Consoles	VT420
	VT520
	Color Console
User Terminals	NCD 19C X-Terminal
	NCD 17C X-Terminal
	NCD HMX X-Terminal
	NCD HMXpro X-Terminal
	NCD Explora X-Terminal
Communication Devices	SIMPACT CNS 6200
	SIMPACT CNS 6300
	SIMPACT CNS 6320
Tape Drives	DEC TLZ09
	DEC TSZ07
	DEC TLZ09-VA
	DEC TLZ09-LK
Disk Drives	DS-RZ1-CB-VW*
	DS-RZ1-CD-VW*
	DS-RZ1-CF-VA*
	DS-RZ1-CF-VW*
	DS-RZ1-DF-VA*
	DS-RZ1-EF-VA*
	DS-RZ1-FF-VA*
	DS-RZ1-FB-VW*
	DS-RZ1-DA-VW*
	DS-RZ1-DD-SB*
	DS-RZ1-DD-VW*
	DS-RZ1-EA-SW*

Table 10-3 DEC AlphaServer 4000-Based CSP (Continued)

Disk Drives (Continued)	DS-RZ1-EA-VW*
	DS-RZ1-ED-VW*
	DS-RZ1-FC-VW*
	RZ26-VA/VW*
	RZ28-VA/VW*
	RZ-28D
	RZ-28D-VA*
	RZ-29
	RZ-29B/L-VA*
	RZ-29B/L-VW*
Optical Disk Drives	SONY SM0541
Printers	DEC LB-615*
	DEC LB1515*
	DEC LB1015*
	DEC LB-600*
	DEC LG-01*
	Data Products LB-615*
	Epson 870
	Epson 2550*
	Epson LQ570+
	Fujitsu 3041T
	Fujitsu 3042T
	Fujitsu 3043T
	HP-4100
	Tally T2045
	Tally T6082
	Tally T6092
Printer Server	MP-1

* Denotes that devices were installed but were never tested and approved.

Table 10-4 DEC AlphaServer 800-Based CSP

Central Processing Units	DEC AXP AlphaServer 800
System Consoles	VT420
	VT520
	Color Console
User Terminals	NCD 17C X-Terminal*
	NCD 19C X-Terminal
	NCD HMX X-Terminal
	NCD HMXpro X-Terminal
	NCD HMXpro 24 X-Terminal*
	NCD Explora 700 X-Terminal
	NCD Explora 500 X-Terminal*
	NCD Explora 400 X-Terminal*
Communication Devices	SIMPACT CNS 6200
	SIMPACT CNS 6300
	SIMPACT CNS 6320
Tape Drives	DEC TLZ09-VA
	DEC TLZ09-LK
	DEC TSZ07
Disk Drives	RZ-28D
	RZ-29
	RZ1BB-SB
	DS-RZ1-CB-VW*
	DS-RZ1-CD-VW*
	DS-RZ1-CF-VA*
	DS-RZ1-CF-VW*
	DS-RZ1-DF-VA*
	DS-RZ1-EF-VA*

Table 10-4 DEC AlphaServer 800-Based CSP (Continued)

Disk Drives (Continued)	DS-RZ1-FF-VA*
	DS-RZ1-FB-VW*
	DS-RZ1-DA-VW*
	DS-RZ1-DD-SB*
	DS-RZ1-DD-VW*
	DS-RZ1-EA-SW*
	DS-RZ1-EA-VW*
	DS-RZ1-ED-VW*
	DS-RZ1-FC-VW*
	RZ26-VA/VW*
	RZ28 – VA/VW*
	RZ-28D – VA*
	RZ-29B/L – VA*
	RZ-29B/L – VW*
Optical Disk Drives	SONY SM0541
Printers	DEC LB-615*
	DEC LB1515*
	DEC LB1015*
	DEC LB-600*
	DEC LG-01*
	Data Products LB-615*
	Epson 870
	Epson 2550*
	Epson LQ570+
	Fujitsu 3041T
	Fujitsu 3042T
	Fujitsu 3043T

Table 10-4 DEC AlphaServer 800-Based CSP (Continued)

Printers (Continued)	HP-4100
	Tally T2045
	Tally T6082
	Tally T6092
Printer Server	MP-1

* Denotes that devices were installed but were never tested and approved.